

**Notice of Allowability**

Application No.

10/821,116

Examiner

Barbara Summons

Applicant(s)

AIGNER ET AL.

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to \_\_\_\_\_.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 08 April 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☒ None   of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Comments Priority/Title.

## **REASONS FOR ALLOWANCE/COMMENTS**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 10/08/2001. It is noted, however, that applicant has not filed a certified copy of the German application as required by 35 U.S.C. § 119(b).  
[Note this is not a National Stage (Rule 371) application].

### ***Title Change***

2. It should be noted that the Title of the Invention has been changed to:  
-- BAW Resonator Having Piezoelectric Layers Oriented In Opposed  
Directions --.  
[See e.g. claim 1, lines 2-4; claim 9, lines 3-5; and claim 11, lines 3-6].

### ***Allowable Subject Matter***

3. The following is an examiner's statement of reasons for allowance:  
  
The prior art of record does not disclose or fairly suggest a bulk acoustic wave (BAW) resonator or filter, or a method of making such a BAW resonator, having each of the specifically recited features, and especially having each of the recited electrodes and piezoelectric layers with the recited orientations, all in the arrangements recited.  
  
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. 6,437,482; U.S. 6,243,933; U.S. 5,929,555; and U.S. 5,373,268 are each U.S. equivalents of European documents cited on the International Search Report of the Parent application.

U.S. 6,437,484 discloses a BAW resonator with two piezoelectric layers with opposed polarization directions over either a diaphragm (see Fig. 3) or an acoustic mirror (see Fig. 4), and Fig. 17a shows two such resonators, forming a filter, side by side on the supporting substrate. However, there is no spacing between the piezoelectric layers as recited in the claims of the instant application.

U.S. 6,670,866 discloses a BAW device that has a balanced to unbalanced conversion function and has two piezoelectric layer stacks (Fig. 7), but there is no discussion of polarization directions of the layers.

U.S. 5,872,493 discloses BAW resonator filters that have an additional acoustic mirror above the resonators (see e.g. Figs. 7a and 8a).

Similarly, U.S. 5,864,261 discloses BAW resonator filters having an additional acoustic mirror above the resonators (Fig. 6).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs  
March 4, 2005

A handwritten signature in cursive script that reads "Barbara Summons".

**BARBARA SUMMONS  
PRIMARY EXAMINER**